UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/579,622	05/16/2006	Susanne Moira Brown	0206.CR.03	9395

25871 7590 11/06/2008

SWANSON & BRATSCHUN, L.L.C.
8210 SOUTHPARK TERRACE
LITTLETON, CO 80120

EXAMINER	
SHIN, DANA H	

ART UNIT	PAPER NUMBER
1635	

MAIL DATE	DELIVERY MODE
11/06/2008	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/579,622	BROWN ET AL.	
	Examiner	Art Unit	
	DANA SHIN	1635	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 August 2008*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-3,5,7-17,19-28,33-36,42,44,45,47,90,91 and 95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-3,5,7-17,19-28,33-36,42,44,45,47,90,91 and 95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *8-19-2008*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Status of Application/Amendment/Claims

This Office action is in response to the communications filed on August 19, 2008.

Currently, claims 1-3, 5, 7-17, 19-28, 33-36, 42, 44-45, 47, 90-91, and 95 are under examination on the merits.

The following rejections are either newly applied or are reiterated and are the only rejections and/or objections presently applied to the instant application.

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Response to Arguments and Amendments

Withdrawn Rejections

Any rejections not repeated in this Office action are hereby withdrawn.

Maintained Rejections

Claim Rejections - 35 USC § 112

Claims 1-3, 5, 7-17, 19-28, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 112, second paragraph as being indefinite for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Applicant argues that the claims indicate that the HSV "encodes" both an

antisense to the SCCRO oncogene and a sense sequence, and furthermore, HSV is a double-stranded DNA genome. Contrary to applicant's argument, the claims as recited indicate that the HSV genome comprises "a nucleic acid encoding an antisense to the squamous cell carcinoma related oncogene", thereby encoding "asSCCRO", wherein the "as" indicates "antisense". See claim 1, lines 1-3 as well as page 5, lines 26-31 and page 16, lines 4-7 of the specification. However, inconsistent with the claimed "antisense" nucleic acid, the claims indicate that the "antisense" sequence comprises SEQ ID NO:1 or SEQ ID NO:3, both of which are "sense" transcript sequences of SCCRO. See page 34, lines 13-17 of the specification. The instant specification clearly distinguishes or separates the claimed "nucleic acid encoding asSCCRO" (an antisense molecule) from "nucleic acid encoding double-stranded siRNA" (a short interfering molecule). See pages 7-9 of the specification, for example. Hence, as currently claimed, it is unclear and ambiguous whether applicant is claiming an "antisense" molecule against the SCCRO or a double-stranded "short interfering" molecule targeted to the SCCRO, especially because the claims expressly recite "asSCCRO", instead of "siRNA", wherein the claims embrace a short interfering double-stranded structure. Furthermore, whether or not the HSV genome comprises sense and antisense strands is irrelevant in the instant case, because the "claimed" nucleic acid "in" the HSV is not of HSV sequence, but of SCCRO sequence. Since applicant has failed to amend the claims to particularly point out an invention, and since applicant's arguments do not demonstrate that the claims distinctly claim the subject matter which applicant regards as "the invention", this rejection is maintained.

Claim Rejections - 35 USC § 103

Claims 1-3, 5, 7-17, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Echeverri et al., Rampling et al., Burton et al., and Glorioso et al. for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Applicant argues that one skilled in the art would not have had a reasonable expectation of success in arriving at the claimed invention based on the combination of the cited references because of "an art-recognized difficulty in attaining stable mRNA transcripts in lytic HSV-infected cells in view of the *vhs* nuclease expressed by lytic HSV-infected cells" (emphasis added). However, applicant has failed to show objective evidence for the alleged "art-recognized difficulty". Applicant merely asserts that the "art-recognized" difficulty associated with the *vhs* gene in the viral genome was taught by Everly et al.[1] It is found that, contrary to applicant's allegations and assertions, Everly, Jr. et al. did not teach it is difficult to obtain stable mRNA transcripts in lytic HSV-infected cells, nor did they teach that it is widely recognized in the art. The essence of the teachings of Everly, Jr. et al. is that Vhs is an mRNA RNase and that it confers nuclease activity. Nowhere is there a teaching in the Everly, Jr. et al.'s reference that specifically teaches away from the claimed invention, which is directed to a non-neurovirulent oncolytic HSV (HSV1716) comprising an antisense SCCRO. As repeatedly stated in prior Office actions, the practical utility of non-neurovirulent, ICP34.5 null mutant HSV, namely HSV1716, in cancer therapeutics as an anticancer agent as well as a therapy vector was known in the prior art. See the teachings of Rampling et al., Burton et al., and Glorioso et al. Furthermore, the

instant specification confirms that HSV1716 is an oncolytic virus and that HSV1716 has been known in the art and deposited on January 28, 1992 with the provisions of the Budapest Treaty. See page 2, lines 1-2 and 8-17. Even better, contrary to applicant's assertions that there was no reasonable expectation of success in making the claimed product due to the unstable properties of HSV1, the instant specification teaches that the oncolytic HSV1716 "can be used in targeted antisense nucleotide delivery strategies and therapeutic methods". See page 6, lines 14-17. As such, even if Everly, Jr. et al., Schmidt Pak et al., Sarma et al., and Strom et al. taught disadvantages and difficulties associated with *vhs* of HSV1, such problems are irrelevant and out of scope in the instant case, because the instantly "claimed" HSV1716 is not only inherently oncolytic and but also was known to be useful to express antisense polynucleotides in view of Rampling et al., Burton et al., Glorioso et al., and the instant specification.

Moreover, the HSV1716 of the instant case is not claimed to lack the *vhs,* nor does the specification describe that the claimed HSV1716 is deficient in the *vhs*, which is the very source of applicant's argument for no reasonable expectation of success in making the claimed invention. In fact, the instant specification is completely silent about the *vhs per se,* let alone the problems associated with the *vhs* in the HSV genome, which are alleged to teach away from using the HSV vector. Hence, the presence of *vhs* in the HSV1716 of Rampling et al. would not have prevented one of ordinary skill in the art from making the claimed HSV1716 expressing an antisense SCCRO, because the instantly claimed HSV1716 also contains the problematic *vhs* just like the HSV1716 of Rampling et al. In fact, applicant's arguments based on the *vhs* appear to question the operability and utility of the instantly claimed HSV1716 containing the *vhs*. Most

[1] There is no reference authored by "Everly et al."; however, a reference authored by "Everly, Jr. et al." was

importantly, there is no evidence that the claimed oncolytic HSV1716 is structurally or functionally different from the HSV1716 of Rampling et al. Since applicant has failed to provide substantive evidence against using the HSV1716 of Rampling et al., which is structurally and functionally identical to the instantly claimed non-neurovirulent, oncolytic HSV1716, this rejection is maintained.

Claims 1-3, 5, 7-17, 19-28, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Echeverri et al., Rampling et al., Burton et al., Glorioso et al., and Jacobs et al. for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Applicant provides similar arguments as those applied for the above rejection such that the *vhs* activity of the HSV genome would have taught one of ordinary skill in the art from making the claimed invention. As stated above, the presence of the *vhs* in the mutant HSV1716 of Rampling et al. has nothing to do with a reasonable expectation of success in arriving at the claimed invention because none of the claims requires that the HSV1716 be deficient in the *vhs*. Further, the HSV1716 of the prior art is identical in function (non-neurovirulent and oncolytic) and structure (ICP34.5-null mutant, HSV1 mutant strain, HSV1716) to the instantly claimed HSV1716. Hence, one of ordinary skill in the art would have had a reasonable expectation of success in making the claimed invention based on the teachings and tools available at the time of the invention. See pages 4-6 for more detailed explanation.

---

previously submitted on January 24, 2008. Since applicant merely mentions the reference by its authors, examiner

Claims 1-3, 5, 7-17, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Lodes, Rampling et al., Burton et al., and Glorioso et al. for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Applicant argues that one skilled in the art would not have had a reasonable expectation of success in arriving at the claimed invention based on the combination of the cited references because of "an art-recognized difficulty in attaining stable mRNA transcripts in lytic HSV-infected cells in view of the *vhs* nuclease expressed by lytic HSV-infected cells" (emphasis added). Further, applicant's arguments are essentially the same as those provided for the previous rejections. Hence, the reasons for maintaining this rejection are reiterated from those stated above. Briefly, the HSV1716 of the prior art meets both the structural and the functional requirements set forth in the claims. Further, no claim recites that the claimed HSV1 vector must lack the *vhs*. Since the HSV1716 of the prior art is no different from that claimed in the instant case from functional and structural viewpoints, one of ordinary skill in the art would have had a reasonable expectation of success in arriving at the claimed invention.

Claims 1-3, 5, 7-17, 19-28, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Lodes, Rampling et al., Burton et al., Glorioso et al., and Jacobs et al. for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

---

will assume that applicant means a reference by Everly, Jr. et al. (*Journal of Virology*, 2002, 76:8560-8571).

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Again, applicant provides the same arguments comprising the correlation between the *vhs* of HSV and no expectation of success. All of the statements for maintaining the prior rejections are hereby reiterated in their entirety. Briefly, the HSV1716 of the prior art meets both the structural and the functional requirements set forth in the claims. Further, no claim recites that the claimed HSV1 vector must lack the *vhs*. Since the HSV1716 of the prior art is no different from that claimed in the instant case from functional and structural viewpoints, one of ordinary skill in the art would have had a reasonable expectation of success in arriving at the claimed invention.

Claims 1-3, 5, 7-17, 19-28, 33-36, 42, 44-45, 47, 90-91, and 95 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Estilo et al., Rampling et al., Crooke, and Jacobs et al. for the reasons of record as set forth in the Office action mailed February 19, 2008 and for the reasons stated below.

Applicant's arguments filed on August 19, 2008 have been fully considered but they are not persuasive. Again, applicant provides the same arguments comprising the correlation between the *vhs* of HSV and no expectation of success. All of the statements for maintaining the prior rejections are hereby reiterated in their entirety. Briefly, the HSV1716 of the prior art meets both the structural and the functional requirements set forth in the claims. Further, no claim recites that the claimed HSV1 vector must lack the *vhs*. Hence, whether or not the *vhs* nuclease activity presents a problem is irrelevant in the instant case. Since the HSV1716 of the prior art is no different from that claimed in the instant case from functional and structural viewpoints, one

of ordinary skill in the art would have had a reasonable expectation of success in arriving at the claimed invention.

Conclusion

No claim is allowed.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DANA SHIN whose telephone number is (571)272-8008. The examiner can normally be reached on Monday through Friday, 7am-3:30pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James (Doug) Schultz can be reached on 571-272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Dana Shin
Examiner
Art Unit 1635

/J. E. Angell/
Primary Examiner, Art Unit 1635